United States Department of the Interior
WATER AND POWER RESOURCES SERVICE
SOUTHWEST REGION
COMMERCE BUILDING, 714 S. TYLER, SUITE 201
AMARILLO, TEXAS 79101

IN REPLY
REFER TO: 770

OCT 8 1980

Memorandum

To: Project Leader, Ecological Services, Colorado Field Office, Fish and Wildlife Service, Lakewood, Colorado

From: Regional Planning Officer

Subject: Revised Water Table Elevations and Depths for 1978 and 1979, Closed Basin Division, San Luis Valley Project, Colorado

Enclosed for your use are revised contour map overlays for the highest and lowest elevations and shallowest and deepest depths of the water table in 1978 and 1979 in the subject project area. The revised map overlays are compatible with Baldy, Deadman Camp, Deadman Camp SW, Dry Lakes, Hooper East, Medano Ranch, Moffat South, Sheds Camp, and Twin Peaks topographic quadrangles (scale, 1:24,000). These overlays replace those previously transferred to you from our Engineering and Research Center personnel (memorandums of July 25 and August 8, 1980). The general observations conveyed in our August 8 memorandum concerning the water table in Stage 1-2 and Stages 3, 4, and 5 remain appropriate.

The water table depth contours for the deepest and shallowest occurrences in both 1978 and 1979 are drawn on the enclosed overlays at 2.5 foot intervals. Acreages for areas overlying the water table at depths of less than 2.5 feet and depths between 2.5 and 5.0 feet are included in the attached table and narrative, by season of the year for 1978 and 1979.

I trust that this information will be of value and considered in the development of recommendations by the Fish and Wildlife Service for mitigation. If additional assistance or evaluation is needed, please contact Dr. Fred Pinkney (FTS 728-9613) or Mr. Jack Sanders (FTS 728-9472).

Attachment and enclosures

cc: Area Manager, Fish and Wildlife Service, Salt Lake City, Utah
(w/attachment, w/o enclosures)
Chief, Division of O&M Technical Services, E&R Center, Attention D-440
(w/attachment and reduced general map enclosures)
Representative, Albuquerque, New Mexico (w/attachment, w/o enclosures)
Field Representative, Alamosa, Colorado (w/attachment, w/o enclosures)

Closed Basin Division, San Luis Valley Project, Colorado

Acres Within Water Table Depth Contours - 1978 and 1979

General Observations and Narrative Discussion

Several additional general observations can be made as a result of the acreages of various water table depths. It should be kept in mind that 1978 was a relatively dry year, with very little snowmelt or other runoff into the project area. As measured at the Del Norte gage, 1979 was the second highest runoff year since 1941. As would be expected, the greatest acreage of land under which the water table was 5.0 feet or less below the ground surface occurred during the season when shallowest water table levels were present. The relative acreages of water table depth between seasons in 1978 and 1979 remained relatively consistent except on the Medano Ranch quadrangle which reduced drastically in 1979. The 1979 reduction in total acreage of land with water table depth 5.0 feet or less is unexplained; however, one suggested explanation is related to man's activities.

The total acreage of land having water table depth between 2.5 and 5.0 feet was greater than the acreage having less than 2.5 feet regardless of season or year. Even though 1979 was a high runoff year, the total acreage of lands with water table depth equal to or less than 5.0 feet decreased in both the shallowest and deepest seasonal conditions when compared with 1978 acreages. In addition, comparison of an average of total acreage across depth and season for 1978 and 1979 exhibits a decrease in the total acreage of land in 1979 with a water table depth of 5.0 feet or less. The indication points toward a lowering of the water table which could result from lesser volume of ground water movement into the project area because of increased irrigation efficiencies and/or because of a time lag between surface runoff (precipitation or snowmelt) and the resulting effect on the unconfined ground water system. If a time lag of this magnitude (months) is a major factor in considering ground water recharge, direct connection between surface runoff and fluctuations in the water table is not apparent.

Closed Basin Division, San Luis Valley Project, Colorado

Acres Within Water Table Depth Contours - 1978 and 1979

Quadrangle	Shallowest - 1978 depth (feet)		Greatest - 1978 depth (feet)		Shallowest - 1979 depth (feet)		Greatest - 1979 depth (feet)	
	<2.5	2.5-5.0	<2.5	2.5-5.0	<2.5	2.5-5.0	<2.5	2.5-5.0
Baldy	350	661	78	340	303	398	154	211
Deadman Camp	8,379	8,090	1,627	10,283	10,931	5,143	1,699	11,381
Deadman Camp SW	126	6,185	2	6,106	103	4,358	-	6,104
Dry Lakes	8,621	7,337	6,341	6,936	7,165	7,829	6,060	8,258
Hooper East	2,348	5,600	502	5,705	2,488	4,752	941	4,589
Medano Ranch	84	9,775	82	6,746	-	2,101	704	1,593
Moffat South	477	1,708	492	2,578	568	1,378	189	1,116
Sheds Camp	-	69	-	27	-	3	-	106
Twin Peaks	-	246	-	-	-	599	-	50
TOTALS	20,385	39,671	9,124	38,721	21,558	26,561	9,747	33,408
Totals across depth by season	60,056		47,845		48,119		43,155	
Totals across depth and season by year (average)	53,951				45,637			